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Engineering: A Global Perspective
Blueprint Staff 2006-07

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Engineering Alumni Join Peace Corps
by Natasha Richardson

Zachary Kippenbrock, an engineering graduate from the University of Nebraska-Lincoln, said that when he graduated and began looking at career options, he wanted to find “… a way to use my technical degree, explore the world and give back to society.” The Peace Corps was something that gave him that opportunity.

Volunteers from UNL

Two recent graduates of UNL’s College of Engineering made the decision to join the Peace Corps. Kippenbrock graduated from UNL in May 2004 and earned a degree in biological systems engineering. He was then assigned to work in Panama and designed aqueducts. He has finished his service with the Peace Corps and now works in Fort Worth, Texas, as a water resources engineer.

Zachary Becker graduated from UNL in December 2005 with a degree in mechanical engineering. He is currently serving in Jamaica as a community sanitation engineer.

Application Process

The process of applying for the Peace Corps is fairly extensive, ensuring that the best candidates serve as volunteers. “The application process was straightforward, yet very thorough,” Becker said. Applicants must complete a written application as well as an interview. Skills that are important for potential volunteers to possess are in the areas of communication, leadership and technical ability. Applicants are also required to go through a medical check that includes a physical, eye and dental exams, and vaccinations, as well as a background check that reviews the potential volunteer’s criminal record, financial obligations and education.

Training

Prior to starting their service, Peace Corps trainees go through a process of pre-service training. “This was an exciting time because everything was new and unfamiliar,” Becker said. This procedure consists
of the trainee living with a host family in his or her country of service, going through language-intensive training and acquiring knowledge about the culture. In addition, trainees also go through the technical training required for them to apply their skills during their time of service. Another important aspect of the pre-service training is learning about the health issues of the country in which they are working. AIDS and HIV education is an area that is integral for many volunteers to be informed about.

Engineering Opportunities

The Peace Corps offers many opportunities for people with degrees in engineering fields. A popular service assignment for Peace Corps volunteers with engineering degrees is water resources engineering. People who are assigned to this service work with projects involving water systems and water distribution. Right now, there are employment possibilities through the Peace Corps in Central America involving construction of sanitation facilities and water systems, as well as educating the population on hygiene practices. Engineers are also working in Asia, where waste management is an issue. More information on engineering opportunities in the Peace Corps is available through UNL Career Services.

Benefits of Peace Corps Service

Peace Corps volunteers enjoy many benefits. Financial benefits include a living allowance, student loan deferments or partial cancellations, medical and dental care, paid vacation days, and transportation to and from the location of their service. Peace Corps volunteers also benefit from learning skills during their training and service, as well as having an opportunity to become fluent in a foreign language when serving in areas where the population doesn’t speak English. During the two-year service, foreign language acquisition often happens quickly. “I went to Panama with zero Spanish and left fluent,” Kippenbrock said. In addition to these benefits, Peace Corps volunteers also have an incredible experience to add to their resumé. “I came back to the States and had no trouble finding a job, and I think that had a lot to do with the experience I had in Panama,” Kippenbrock said.

Peace Corps volunteers have many different ways to grow, and after their experiences with the organization, Becker said volunteers “…are sure to have a broadened view of their own and other cultures that is only positive.” In addition to all the great opportunities for growth and experiences that volunteers have, engineering majors can use their problem-solving education and sharpen their skills. In true engineering fashion, Kippenbrock said his experience “… taught me an independence and an attitude that no problem is too large to find a solution.”

Carrying supplies to a water reservoir in the rainforest.

Personal Fulfillment

Volunteers also have the opportunity to grow personally. Volunteers in the Peace Corps do not have many of the luxuries they enjoyed in the United States and must adjust to a life with belongings that only serve basic needs. But this kind of life can give volunteers new perspectives. “It made me appreciate the simplicity of life and the joy of that simplicity,” Kippenbrock said.

The people that the volunteers serve also contribute to the volunteers’ growth. The experiences Kippenbrock had with the people he served taught him “… how to open [my] house and heart to a complete stranger.” Volunteers also learn from their fellow volunteers. “The diversity of volunteers is one of the greatest things about serving in the Peace Corps,” Becker said. Becker has worked with people from a wide variety of educational levels and academic concentrations, people of all ages and even people that had already served in the Peace Corps and decided to return to do more service.

Peace Corps volunteers have many different ways to grow, and after their experiences with the organization, Becker said volunteers “…are sure to have a broadened view of their own and other cultures that is only positive.” In addition to all the great opportunities for growth and experiences that volunteers have, engineering majors can use their problem-solving education and sharpen their skills. In true engineering fashion, Kippenbrock said his experience “… taught me an independence and an attitude that no problem is too large to find a solution.”

What is the Peace Corps?

The Peace Corps is an organization that was established in the United States in March 1961. One of the goals of this organization is to assist people in other countries by having Peace Corps volunteers teach them applicable skills that will be useful after the volunteers end their service. Another goal of the Peace Corps is to further develop cultural understanding between people from the United States and the areas that are served. Peace Corps volunteers have the chance to do service in the following areas: education, HIV/AIDS education, health, agriculture, business, environment, and youth.

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Graduate’s Career Lets Him Explore Sea and Space
by Brian Neilson

Have you ever wondered how commercial satellites for TV and satellite radio get into space? There is one University of Nebraska-Lincoln alumnus who can claim a part in this and many other innovations in aerospace.

Don Skoumal, a 1966 civil engineering graduate, has tackled these and many other important projects while working for Boeing, including composite materials for airplanes and NASA mission satellites. Skoumal was born in McCook and took several pre-engineering classes at McCook Community College. In the summers, he worked on a survey crew for the Bureau of Reclamation and did highway design for the Nebraska Department of Roads. He remembers one field assignment that involved a widening and repaving of several miles of Highways 6 and 34. These jobs added to his interest in civil engineering.

“However,” he said, “I think my primary interest was the aerospace field, and I thought that structural design would be a good entry field.” He then came to UNL and got his degree.

While in graduate school, he interviewed with Boeing and was offered a job in the design group of the 737 program in Wichita. Then, Skoumal said, “boldly and not thinking,” he turned it down and inquired about the company’s Seattle operations. Two weeks later, he received an offer to join a Boeing structural research group in Washington.

Skoumal then became one of the pioneers in the emerging composite materials field. “In every aerospace application, minimizing weight is critical,” he said.

One of his early major projects was an experimental flap component for a 707 model aircraft. It was a double-slotted, teardrop-shaped flap for the wings made from a boron epoxy. This composite material not only made it 25 percent lighter, but cheaper as well, since the single bonded piece minimized parts. It is still in use on airplanes today. This success led to confidence to build other composite parts.

One of these parts was a composite boom assembly for a satellite in NASA missions to Mars, Venus and Mercury. A magnetometer, which measures magnetic field, folds up on graphite composite tubes designed by Skoumal and his team.

“A major advantage of using composites was being able to fine-tune the frequency,” Skoumal said.

Skoumal also worked on a similar project for the Hubble Space Telescope. He helped design a composite metering truss to support the telescope’s optics. Another one of Skoumal’s favorite projects in space was a management assignment. He was chief of technology during the Phase B development of the U.S. Space Station. He was in charge of several experimental developments including hypervelocity meteoroid/debris shields, robotic mechanisms, closed cycle water systems and lightweight shell structures.

After 15 years on various
engineering projects, Skoumal joined the management ranks and progressed with more responsibilities to a senior executive position. He was first the director of structures engineering for the Boeing Aerospace Group. He was responsible for functional management of all the structures engineering disciplines, such as structural and mechanical design, stress analysis, thermal analysis, and mass properties analysis. He was later part of a patent review team. He also took part in many Red Team reviews.

“Red Teams,” Skoumal explains, “are generally set up as ‘third party’ reviewers for critical review of large business decisions or following a major problem, such as a flight test failure or key anomaly investigation.”

It was one of these Red Teams that led to Skoumal’s involvement in the Sea Launch project. He was in charge of putting together one to determine the technical and financial feasibility of the program. In 1996, after the team gave it a thumbs up, Skoumal was asked to join a small management team for the program in Oslo, Norway.

“Sea Launch was a Russian idea, which then was presented to Boeing,” Skoumal says. “It is a very unique satellite launch system using Russian rockets, a converted oil-drilling platform as the launch pad and a ship-based command and control vessel.”

The Assembly and Command Ship and the Launch Platform sail from Home Port in Long Beach, Calif., to the equator for launches. The primary customers are commercial companies that launch satellites for broadband TV, cell phones, and other communication media.

Skoumal’s initial title was vice president of the launch system. He was responsible for the engineering specifications and statements of work for procurement of the entire launch vehicle. He was also chairman of the Change Board, and led acceptance review teams when the rocket segments were produced. He was allowed to travel to places in Russia and Ukraine from which the U.S. government was previously restricted.

“I had to add 26 additional pages to my passport to accommodate all the travel during this time,” Skoumal said.

The Home Port was moved to its current location in Long Beach by 1999. On March 27 of that year, Sea Launch held a demonstration launch. Skoumal provided some reflections on this occasion for a recent anniversary:

“Lift-off was a beautiful sight and it looked like the Launch Pad was engulfed in flames and smoke. I’m not sure anyone really relaxed until the final Block DM burn was completed and the DemoSat placed into orbit. To say this was a great team effort really is a gross understatement. The overall partnership and technical results were incredible and continue to be today.”

Skoumal’s final project was a special study for the Missile Defense Agency. The Agency wanted to build a large X-band radar on the island of Shemea in northern Alaska. The problem, Skoumal explains, was that “since this area is very active seismically, the design for the radar foundation required very elaborate (and costly) provisions to isolate the radar and allow it to perform.”

Skoumal was asked to look into a sea-based option for the platform, similar to Sea Launch. “We put together a preliminary design study that included the use of a semi-submersible platform modified for support of the large radar and other support systems,” he said.

The Army senior management reviewed the study and chose this sea-based option. After the work schedule had been completed for the sea-based X-band radar platform, Skoumal decided it was time for retirement.

Skoumal and his wife are currently enjoying retirement in Arizona and Wyoming. The Missile Defense Agency announced in February that the SBX equipment has successfully traveled from Hawaii to Alaska, standing up to harsh winter weather along the way. The Sea Launch missions are continuing, with an XM Satellite Radio satellite being the last successful launch.
Applying Nanotechnology to Tanks
by Kellie Troxel

Military tanks are extremely heavy, weighing in at 80 tons. A single tank can even weigh as much as a Boeing 737 aircraft. During the Gulf War, the U.S. Army discovered that these mammoth tanks, which have armor two inches thick, would sink into the sand.

These out-of-date tanks need to be updated so they can be more effective in such places like Iraq and in other desert warfare. The research of David Allen, dean of the College of Engineering, in collaboration with the Army Research Laboratory in Maryland, focuses on the development of new materials and technology relevant to blast mitigation. The development of these new materials is used for advanced composite armor and lighter body armor for soldiers.

The use of nanotechnology research will improve the detection of remote mines, biological threats and body armor. Researchers at the University of Nebraska–Lincoln have produced some of the most advanced nanofibers in the world. This is a big step toward the future in defensive technology, which will make it possible to develop entirely new materials with completely different characteristics.

The focus, Allen said, is to “make tanks lighter and make [tanks] stronger.”

The key to lighter and stronger tank armor is to fuse thin layers of different materials together. This new material takes a far greater amount of energy to crack, making it more resistant to projectiles. There are an infinite amount of material designs and to test all of them would be far too costly. The use of computer code to design computational models that show the strengths and weaknesses of a material reduces the cost of these tests to a minimum.

“Honestly, I love writing computer code,” Allen said. “It’s like being a detective. Developing a new model, proving it works, and just searching for solutions—it’s a lot of fun.”

Allen has been working on these models for the last 30 years. He started the concept of mathematical algorithms for his Ph.D. thesis in the late 1970s. It wasn’t, however, until the last 15 years that the Army has taken an interest in this alternative to tests in the field and the design of more highly effective tank armor, he said. Since the beginning of this project, the research done at UNL has had a major affect on the Army and Nebraska.

The program includes 24 UNL faculties working on 15 multidisciplinary projects. It incorporates six disciplines: civil engineering, structural engineering, chemical and bimolecular engineering, electrical engineering, engineering mechanics and mechanical engineering. Each group has a common goal to develop new materials and technologies for blast mitigation, mine detection and even pathogen detection.

“We’re a big name in defense. The Army recognizes the research we’re doing for them,” Allen said.
In April 2005, Maggie Baker, then a senior in high school, had a simple periodontal procedure that turned into a five-week ordeal during which she was in and out of the hospital and discovered she had a bleeding disorder: hemophilia.

Hemophilia is a blood disorder that inhibits the body’s ability to produce blood clotting factors. It affects one in every 5,000 males in the United States. There are two main types of the disease: hemophilia A (factor VIII deficiency) and hemophilia B (factor IX deficiency).

Jennifer Calcaterra and Amanda Sutton are Ph.D. students in the Department of Chemical and Biomolecular Engineering doing research in blood disorders. They are both working under William Velander, chair of chemical & biomolecular engineering, who is researching safer, low-cost treatments for hemophilia. “I am very interested in blood disorders, and when I spoke with Dr. Velander, his intensity and passion caught my interest,” Calcaterra said. “I couldn’t imagine working with anyone else.”

Baker is now a sophomore business administration major at the University of Nebraska–Lincoln and has to deal with the effects of hemophilia everyday. Baker’s father, Bill Baker, is a type A hemophiliac, which means he is deficient in factor VIII, a blood-clotting protein. The gene that causes hemophilia is carried on the X-chromosome; it is carried by women and passed from mothers to sons. It is rare for women who carry the hemophilia gene to experience the symptoms of the disease. These women are called symptomatic carriers and only about 10 percent of female carriers experience symptoms.

“I have always bruised and bled easily, but we never suspected that I would be suffering from hemophilia because women only carry the defected gene on the X chromosome, and it is extremely rare for a female to be a hemophiliac,” Baker said.

Both Calcaterra and Sutton are working with Velander on research that will have a direct and significant impact on people with hemophilia. These people need supplemental blood-clotting factor VIII or IX, depending on their type of hemophilia. Sutton is assisting Velander in developing an antibody that can be used in transgenic human factor IX purification from pig milk.

Sutton explained why pigs were chosen for this research. “Pigs generate more milk on a yearly basis as compared to other lactating animals such as cows. Pigs can lactate more times during the year than cows, which only lactate once per year,” she said. “Transgenic pigs have been shown to generate more transgenic material, measured in grams per liter, than other lactating animals.”

The effects of this research would be widespread: Affordable hemophilia treatment would change the lives of millions of people who live with hemophilia, especially the 80 percent of those who live in underdeveloped nations. Calcaterra is working with Velander and the Army on the development of a bandage that could be used to stop arterial bleeding in the field. This bandage would have a profound

Continued on Page 15
1. **Keep your textbooks and learn the basics well.**
   At the end of the semester it may seem tempting to cram for the final, sell the book, and use the money to drink away any class knowledge that may be left. An English major may be able to get away with that kind of behavior, but as an engineer, keep in mind that many of the things learned during early classes will come back to haunt you over and over again. Some books contain appendices that will be invaluable in completing later projects. A student who can master these lower level courses will reap the benefits throughout the rest of their education. These skills are also essential to passing the Fundamentals of Engineering (FE) exam and successfully obtaining and holding a job.

2. **Go to class.**
   This universal piece of advice holds true for engineering. It is hard to learn while still asleep in bed. Most often, if a student skips classes with the intention of reading and learning on their own, it never happens.

3. **If you live off campus, park off campus or ride the bus.**
   Parking choices will vary from person to person based on individual situation, but often times a student can survive without a university parking permit. Most permits do not guarantee a spot and increase in price each year. However, free parking abounds in the neighborhoods surrounding campus. The extra exercise is good for you anyway. If possible, use a bike or even break out that free bus pass (that every student gets in the mail) to make travel as economical as possible.

4. **Form study groups.**
   Many professors encourage or even require collaboration on certain assignments. Not only is this beneficial for group projects, it is also highly helpful on regular assignments and test review (and there are some students who really do have all the answers, if you know what I mean). Remember that while you can work together, you must still do your own work.

5. **Use your adviser and plan all of your classes in advance.**
   A few minutes of planning ahead can and will make all the difference between getting out in four years and discovering what it’s like to be a sixth-year senior. Prerequisites and co-requisites require careful planning, and some required classes are offered only once a year. An advisor can help you make sense of it all and will make sure you don’t miss something important.

6. **Take part in student organizations.**
   Of the 447 registered student organizations on campus, there are 40 engineering-specific clubs. Involvement in these groups yields the chance to learn, compete and lead in areas that are closely tied to engineering. It is a great boost to a resume and a good way to meet fellow engineering students.

7. **Intern, shadow, tour or co-op at every opportunity.**
   Many students, especially those in engineering, find themselves too busy to work during the school year. When school is out, it is common for students to fill their summers with a familiar, non-technical job that is close to home. This may be an easy way to get through summer, but it leaves that individual with no
applicable real world experience upon graduation. Interviewers for full-time jobs place a high value on previous engineering experience, so it is crucial to build up as much as possible. It may seem risky to accept an internship or co-op that will be out of state or requires a semester off, but these risks are rewarded with wages usually exceeding $15 per hour. Early job experience may also confirm or alter your choice of majors, which is best to learn before graduation, when you still have a chance to switch.

8. Use study resources.
Certain classes offer course-specific help for free, if you just know where to look. These include:
- Math Resource Center (106 Burnett)
- Chemistry Resource Room (228 Hamilton Hall)
- Writing Assistance Center (129 Andrews Hall, 119 Sandoz Residence Hall, first floor Smith Hall)
- Computer Science and Engineering Resource Center (21 Ferguson Hall)
- Shared Advising for Engineers (http://safe.unl.edu/)
- Engineering Mechanics Instructional Laboratory (Statics, Dynamics, Elastic Bodies) (Second floor (NW corner) Nebraska Hall)

9. Learn and use the resources available to your college and major.
Many engineering departments have bulletin boards, lounges, lockers, computer labs, and even free printing reserved for their students only. These resources often go unnoticed and unused by underclassmen. A good way to learn what is available for your major is to ask in your department office, or ask your fellow classmates. You can also ask your professors, which is a good idea anyway since they can involve you in their research projects and can put you into graduate school for free.

There are many useful resources within the college that everyone should know about. Career Resources (Husker Hire Link, Career Fairs), The Engineering Library, E-Week, and Study Abroad just to name a few. A good way to find out about these resources is to use yet another resource: The engineering academic planner (which will also help keep you organized).

10. Maintain balance in your life.
Classes can and will consume all of your time and stress you out if you let them. If you are going to study hard (and you will have to), it is important to play hard too. Make sure you reserve some time for recreation like Husker games, dating, going to the rec and intramural sports, even going to church or just listening to music. Taking some time out will let your mind reset and nerves unwind. If you still have some time, call your parents and let them know you really haven’t forgotten the number.

Strange facts about the engineering complex
- Prior to 1958, Nebraska Hall was a watch factory.
- If you are wandering Othmer Hall at the proper time of night, mysterious jugglers will appear.
- Engineering students spend a majority of their educational career within the engineering super complex (Othmer Hall-Walter Scott Engineering Center-Nebraska Hall), but the contents of most of the rooms remain a mystery to many.
- Nebraska Hall is home to a map store, a logo store, a museum, a cell phone store, a two-story engineering library and a patent office.
- Walter Scott was once home to a functional nuclear reactor. (It has since been decommissioned.)
- Othmer Hall was once home to its very own snack shop, the EDGE. (It has since been decommissioned.)
- The “Link” between Nebraska Hall and Walter Scott connects the second floor to the first floor and the third to the second without a single stair required. (This is well-known by established students, but often confuses and bewilders freshmen and visitors.)
2007 ASME Design Competition
by Khoa Chu

“In the aftermath of the 2004 tsunami and Hurricane Katrina, affected areas were surrounded by polluted water and failed filtration systems. According to the World Health Organization, 1.1 billion people lack access to improved water sources, which represents 17 percent of the global population. The 2007 competition, which challenges student teams to create a human-powered water still, highlights the fact that engineers play a key role in society at large. The challenge offers students an opportunity to implement learned skills and appreciate the social, economic and environmental impact of engineering.” –ASME-

This spring five engineering students, Andrew Shroll, Joseph Schaefer, James Lucas, Lee Redden and Andrew Nelson set out on a trip to Purdue University in West Lafayette, Ind., to compete in the American Society of Mechanical Engineer design competition. They had been working and devising a design diligently since January. About two weeks before the competition, they were worried that their main key component, the vacuum pump, might not come in time for the design competition. But luckily, the part came in time and were ready to test their Human-Powered Potable Water Still device.

Each year, ASME sponsors this event for college undergraduates to better their understanding of design concepts and apply them to the real world. The purpose of this year’s competition was to see if students could design and build a device which would heat water to reach boiling temperatures, and then condense the steam generated to get potable water.

After placing in the top 10 at the competition, UNL ASME designers hope that next year, a new device can get them into the International Mechanical Engineering Congress and Exposition (IMECE) to compete with other teams and place first in their district.

“I enjoy designing and this gives me the chance to get involved. It gives me a better idea of how engineers play a role in society,” Shroll said. Shroll, a junior mechanical engineering major started attending these competitions as a spectator during his freshman year and gradually became a part of the team the following years. The rest of the design team includes Joseph Schaefer, a junior; Lee Redden, a junior; James Lucas, a senior; and Andrew Nelson, a senior.

Now that the ASME design competition is over, the team can start planning for next year’s competition and using what they learned from this year to further the development of a new device for next year competition. This year’s design team would like to thank the engineering student advisory board for donating the funds for this design competition.

“I believe it is really important to be involved; this practices both your skills and experience as an engineer,” Shroll said.
“You must have the mindset and determination to completely understand the key idea in this competition,” Schaefer said.

**How the device works**

The device designed by the team this year can be activated by pedaling. Pedaling activates the gears and correctly transfers heat to boil the water inside a container. From this point, the water that has been boiled is now condensed into steam, which then travels through a tube and finally outputs a clear liquid into a large container. If the liquid is clear enough, it can be drinkable as water; otherwise, it cannot be drunk.

*The human-powered potable water still design this year by UNL’s ASME team.*

Joseph Schaefer pedals hard to activate the mechanism.

**ASME**

The American Society of Mechanical Engineering tries to increase the awareness of mechanical engineering to students who are majoring or have graduated from college. Here at UNL, the student section does various tours throughout the year. The group brings in speakers from different companies and related fields to talk to students about careers and information on their companies. ASME also includes many hands-on activities to increase both students’ skills and their experiences as engineers.

The purpose of ASME is to:

- Provide a forum to train officers and future leaders.
- Create networking opportunities.
- Host student competitions.
- Supply a forum for technology transfer for undergraduate and graduate students.
- Introduce students to the real ASME (beyond pizza parties and contests to include technical divisions and community relations) and what ASME can do for your career.

**ASME student section at UNL:**

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[www.asme.org](http://www.asme.org)
2007 TEAMS Competition
by Khoa Chu

Just this spring, the University of Nebraska-Lincoln hosted the regional Tests of Engineering Aptitude, Mathematics and Science competition. This was UNL’s 20th year hosting this event for high school students. This competition is designed for high school students across the United States, and it focuses on the areas of engineering, mathematics, science, and other related technical fields. The TEAMS competition is coordinated by The Junior Engineering Technical Society, an organization that promotes engineering and related technical fields.

TEAMS is a one-day open note and open discussion competition that includes a multiple choice test and an essay portion. The multiple choice test is taken first and in the afternoon the essay is given. The essay is not included into the raw score, but is sent to JETS for national qualification. Only teams that have scored well on the multiple choice test will have their essay read. National eligibility includes teams with a Part I score that is greater than or equal to the automatic high score. The automatic high score is 60 and the low is 30.

This year, UNL had 18 varsity teams and 10 junior varsity teams competing in the TEAMS competition. In the varsity division, Creighton Prep School ranked 1st, Elkhorn High School ranked 2nd and Omaha North High Magnet School ranked 3rd. These three teams are now qualified for the national competition. Tricia Fenster, program assistant and TEAMS coordinator, has been involved in this competition for four years now. She said, “TEAMS is a great way for high school students to start thinking about engineering as a career and opportunity in college.” Furthermore, this event helps students learn more about the engineering field and why it is important to our everyday lives.

Another TEAMS competition was held this year at Wayne State College. This was Wayne State’s third time hosting the event.

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Information about JETS:
Location: 1420 King St., Suite 405 Alexandria, VA 22314

Web site: www.jets.org
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E-mail: teams@jets.org
Above: Creighton Prep School won this year’s TEAMS Competition

Above: Elkhorn High School received 2nd place in this year’s TEAMS Competition

Above: Omaha North High Magnet School received 3rd place in this year’s TEAMS Competition

Hemophilia (Cont’d.)

Continued from Page 9

impact on soldiers with and without hemophilia who are seriously injured and need immediate medical attention by helping the blood to clot quickly.

Hemophilia is one of the most expensive chronic diseases in the United States. According to the National Hemophilia Foundation, the average cost for factor treatments per person are between $60,000 and $150,000 per year. Surgery and other complications can dramatically increase the cost of this disease. When Baker had her wisdom teeth removed in November, the simple surgery required three doses of factor VIII, which cost nearly $15,000. “At present, treatments for hemophilia are extremely expensive and difficult to obtain. Treatments using recombinant blood factors will be much cheaper and produce abundant amounts that can be used to treat many more people afflicted with this debilitating disease,” Calcaterra said.

Baker said, “I was so excited to learn about the incredible research being done right here at UNL. The treatment for hemophilia has evolved so much in the last 20 years. When my dad was young, he had to go to the ER and receive blood clotting factor VIII from transfusions that would be composed of plasma from over 100 donors. He is lucky today that he has not contracted AIDS, hepatitis or some other disease.”

Blood screening has significantly lowered the risk of contracting a disease from treatment in recent years. The research Calcaterra and Sutton are working on will continue to make treatment for hemophilia safer and more affordable, improving the lives of people all over the globe.

Nebraska Blueprint 15
The Steel Bridge Team shows its project to visitors at the 2007 E-Week Open House.

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